

## 10975 Introduction to Programming

### Overview

---

In this 5-day course, students will learn the basics of computer programming through the use of Microsoft Visual Studio 2013 and either the Visual C# or Visual Basic programming languages.

### Target Audience

---

This course is intended for anyone who is new to software development and wants, or needs, to gain an understanding of programming fundamentals and object-oriented programming concepts. They will typically be high school students, post-secondary school students, or career changers, with no prior programming experience. They might want to gain an understanding of the core programming fundamentals before moving on to more advanced courses such as 20483B: Programming in C#.

### Course Objectives

---

- Explain core programming fundamentals such as computer storage and processing.
- Explain computer number systems such as binary.
- Create and use variables and constants in programs.
- Explain how to create and use functions in a program.
- Create and use decisions structures in a computer program.
- Create and use repetition (loops) in a computer program.
- Explain pseudocode and its role in programming.
- Explain the basic computer data structures such as arrays, lists, stacks, and queues.
- Implement object-oriented programming concepts.
- Create and use classes in a computer program.
- Implement encapsulation, inheritance, and polymorphism.
- Describe the base class library (BCL) in the .NET Framework.
- Explain the application security concepts.
- Implement simple I/O in a computer program.
- Identify application errors and explain how to debug an application and handle errors.
- Identify the performance considerations for applications.

### Course Outline

---

#### 1 - Introduction to Core Programming Concepts

Computer Data Storage and Processing  
Application Types  
Application Life-Cycle  
Code Compilation  
Lab : Thinking Like a Computer

## 2 - Core Programming Language Concepts

Syntax  
Data Types  
Variables and Constants  
Lab : Working with Data Types

## 3 - Program Flow

Introduction to Structured Programming Concepts  
Introduction to Branching  
Using Functions  
Using Decision Structures  
Introducing Repetition  
Lab : Creating Functions, Decisions, and Looping

## 4 - Algorithms and Data Structures

Understand How to Write Pseudo Code  
Algorithm Examples  
Introduction to Data Structures  
Lab : Working with Algorithms and Data Structures

## 5 - Error Handling and Debugging

Introduction to Program Errors  
Introduction to Structured Error Handling  
Introduction to Debugging in Visual Studio  
Lab : Implementing Debugging and Error Handling

## 6 - Introduction to Object-Oriented Programming

Introduction to Complex Structures  
Introduction to Structs  
Introduction to Classes  
Introducing Encapsulation  
Lab : Implementing Complex Data Structures

## 7 - More Object-Oriented Programming

Introduction to Inheritance  
Introduction to Polymorphism  
Introduction to the .NET Framework and the Base Class Library  
Lab : Implementing Inheritance  
Lab : Implementing Polymorphism

## 8 - Introduction to Application Security

Authentication and Authorization  
Code Permissions on Computers  
Introducing Code Signing

## 9 - Core I/O Programming

Using Console I/O  
Using File I/O  
Lab : Core I/O Programming

## 10 - Application Performance and Memory Management

Value Types vs Reference Types  
Converting Types  
The Garbage Collector  
Lab : Using Value Types and Reference Types

---

## Technical

- [Azure](#)
- [Dynamics CRM](#)
- [Exchange](#)
- [SharePoint](#)
- [Skype for Business](#)
- [SQL Server](#)
- [System Center](#)
- [Visual Studio](#)
- [Windows](#)
- [Windows Server](#)
  
- [Cisco](#)
- [Citrix](#)
- [Cloud and Big Data](#)
- [CompTIA](#)
- [IBM](#)
- [Info Security](#)
- [ITIL](#)
- [Red Hat](#)
- [VMware](#)

## Applications

- [Office 365](#)
- [Access](#)
- [Excel](#)
- [One Note](#)
- [Outlook](#)
- [PowerPoint](#)
- [Project](#)

- [Publisher](#)
- [Visio](#)
- [Word](#)
  
- [Acrobat](#)
- [Captive](#)
- [Dreamweaver](#)
- [Flash](#)
- [Illustrator](#)
- [InDesign](#)
- [Photoshop](#)
- [Crystal Reports](#)
- [QuickBooks](#)

## Business

- [Business Analysis](#)
- [Business Skills](#)
- [Center for Leadership and Development](#)
- [Project Management](#)
- [Salesforce](#)
- [Six Sigma](#)

## Get in Touch

[New Horizons Global](#)  
[800-PCLEARN](#)  
& [800-201-0555](#)  
[Email NH Global](#)  
[About Us](#) | [Contact Us](#)  
[Privacy](#) | [Terms](#)

-